

Spot Safety Project Evaluation

Project Log # 200501260

Spot Safety Project # 01-99-227

Spot Safety Project Evaluation of the “Vehicles Entering When Flashing” warning flasher installation at the intersection of US 17 at SR 1338 (Wynn Fork Rd) in Perquimans Co.

Documents Prepared By:

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Date

Spot Safety Project Evaluation Documentation

Subject Location

Evaluation of Spot Safety Project Number 01-99-227 – “Vehicles Entering When Flashing” warning flasher installation at the intersection of US 17-NC 37 at SR 1338 (Wynn Fork Rd) in Perquimans Co.

Project Information and Background from the Project File Folder

US 17-NC 37 is a four lane divided, 50 mph facility with left and right turn lanes at the intersection of SR 1338. SR 1338 is a two-lane 45 mph facility without turn lanes. The intersection was controlled by a stop condition on SR 1338. Advance intersection warning signs are at both approaches on US 17-NC 37 when driving toward the intersection. There are also stop ahead warning signs on SR 1338 at both approaches.

The original problem statement was that motorists were not yielding to traffic on US 17-NC 37. Initially the speed was reduced from 55 mph to 50 mph on 10/29/99 to help reduce crash severity. * The spot safety project improvement countermeasure chosen for the subject location was the installation of a “Vehicle Entering When Flashing” warning flasher actuated by vehicles traveling on SR 1338. The initial crash analysis was completed from 5/1/96 through 4/30/99 with 12 reported crashes, 9 were considered correctable by the installation of the flasher. The final completion date for the flasher installation at the subject intersection was on June 30, 2000 at a cost of \$15,000.

*Please note that a speed study was not included in the project file folder.

Naive Before and After Analysis

After reviewing the spot safety project file folder along with all the crashes along the subject road, the crash data omitted from this analysis to consider for an adequate construction period was from May 2000 through July 2000. The before period consisted of reported crashes from September 1, 1995 through April 30, 2000 (4 years 8 months) and the after period consisted of reported crashes from August 1, 2000 through March 31, 2005 (4 Years 8 months). The ending date for this analysis was determined by the available crash data at the time the crash analysis was completed. The analysis consisted of the treatment data at the intersection of US 17-NC 37 and SR 1338 with a 150' y-line.

The following data table depicts the Naive Before and After Analysis for the above information. Please note that Frontal Impact Crashes were the target crashes for the applied countermeasure. These crash types considered are as follows: Left turn, same roadway; Left turn, different roadways; Right turn, same roadway; Right turn, different roadways; Head on; and Angle.

<u>Treatment Information</u>			
	Before	After	Percent Reduction (-) Percent Increase (+)
Total Crashes	21	16	-23.8
Total Severity Index	15.4	13.7	-10.7
Frontal Crashes	19	15	-21.1
Frontal Severity Index	12.9	14.6	13.1
Volume	8000	12000	50.0
<u>Treatment Injury Crashes</u>			
	Before	After	Percent Reduction (-) Percent Increase (+)
Fatal	3	1	-66.7
Class A	0	1	100.0
Class B	6	0	-100.0
Class C	4	7	75.0
Property Damage Only	8	7	-12.5
<u>Frontal Injury Crashes</u>			
	Before	After	Percent Reduction (-) Percent Increase (+)
Fatal	2	1	-50.0
Class A	0	1	100.0
Class B	6	0	-100.0
Class C	4	7	75.0
Property Damage Only	7	6	-14.3

Table 1.

The naive before and after analysis at the treatment location resulted in a 24 percent decrease in Total Crashes, a 21 percent decrease in Frontal Crashes, and a 50.0 percent increase in Average Daily Traffic (ADT). The before period ADT year was 1998 and the after period ADT year was 2003.

Results and Discussion

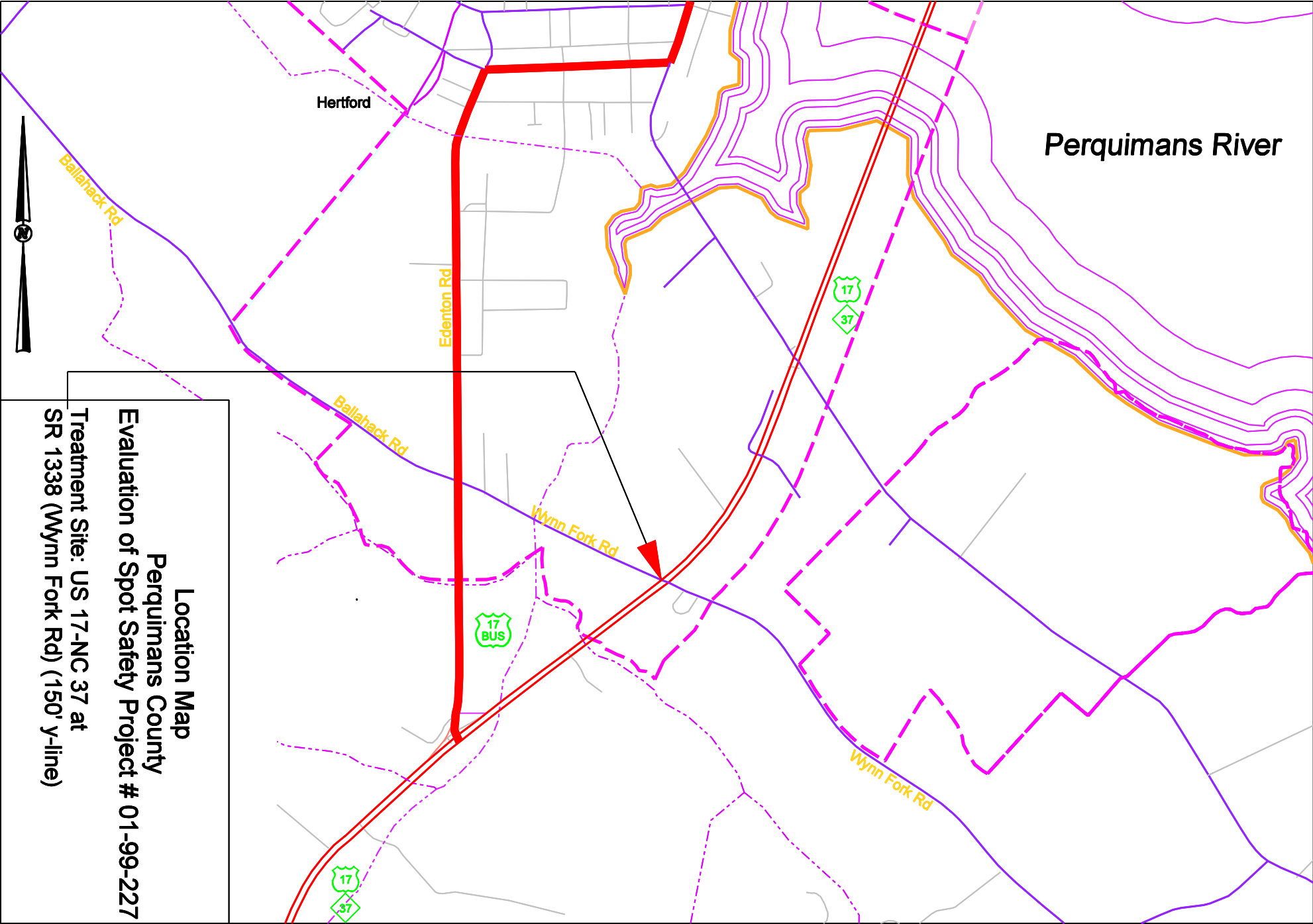
The naive before and after analysis involving the comparison of treatment actual before data versus treatment actual after data resulted in a 24 percent decrease in Total Crashes and a 21 percent decrease in Frontal Impact Crashes. The summary results above demonstrate that the treatment location appears to have had a decrease in the number of Total Crashes and a decrease in the number of Frontal Impact Crashes from the before to the after period.

Referencing the collision diagram there is a crash pattern between the northbound and eastbound vehicles in the before and after periods. There is a slight skew at the intersection that may place US 17-NC 37 northbound in a vehicle's (B or C pillar) blind spot when attempting to cross the intersection on SR 1338 eastbound. During the site visit a truck was crossing US 17-NC 37 eastbound, the flasher was activated initially but turned off while the truck was waiting in the median for a safe gap in traffic (see first photo).

Regional engineers are to complete investigations in the event of a fatal crash on state roads. An investigation of the fatal crash (# 9 in the after period) was not completed by NCDOT due to the fact that a Hertford city police officer responded to the crash. The city police were not required to submit fatal crashes to the Highway Patrol Database at the time of the crash from which the Traffic Safety Unit receives information to perform investigations. No knowledge of the fatal may have hindered any further investigation of the intersection by NCDOT personnel.

Please note this location was on the statewide HSIP Potentially Hazardous Intersection list ranking as number 114 in 2003 for the I-1 warrant but was excluded due to the Spot Safety Project # 01-99-227.

As the Safety Evaluation Group completes additional spot safety reviews for this type of countermeasure, we will be able to provide objective and definite information regarding actual crash reduction factors for this type of intersection.



Treatment Site Photos Taken August 20, 2005



Driving north on US 17-NC 37



Driving south on US 17-NC 37



Driving south on US 17-NC 37



Driving west on SR 1338



Looking south from SR 1338



Looking north from SR 1338



Driving east on SR 1338



Looking north from SR 1338



Looking south from SR 1338

